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ABSTRACT

Potential paths to nuclear war and the available means of prevention of nuclear war are discussed. Presented is a detailed description of six nuclear war scenarios, and brief examples of types of potential deterrents to nuclear war (firebreaks) which are relevant for each. To be effective, the right combination of firebreaks must be used, the timing must be correct, and constant re-examination is necessary to insure that the best resources available are being utilized. Scenarios that might culminate in an all-out nuclear war include escalation in a European conflict, in a third world conflict, after a false alarm, after terrorist use of nuclear weapons, and after accidental or unauthorized use of nuclear weapons. Tools, or types of potential firebreaks, that might be employed to prevent the scenarios from starting in the first place, or once started, from escalating to higher and higher levels and eventually reaching general nuclear war fall into the following categories: improved relations; arms control; nuclear nonproliferation; conflict resolution; and crisis of communications. (RM)

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thinking about preventing nuclear war

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A Ground Zero Publication

PREFACE

The goal of the first phase of the Ground Zero educational effort has been to educate the American public about the dangers of nuclear war and what the effects would be if one occured. The activities of Ground Zero Week (April 18-25, 1982) and the publication of our book, *Nuclear War: What's In It For You?*, highlighted our efforts to provide this basic information to millions of Americans. While Ground Zero will continue to supply information about the basic threat of nuclear war, we feel that it is also vital to help Americans think about what is necessary to prevent nuclear war. This booklet, *Thinking About Preventing Nuclear War,* is the first of several publications and events that will work towards this end.

As is the case with many Ground Zero projects, this booklet is the result of the combined hard work of a number of Ground Zero volunteers and staff members. An ad hoc committee composed of Mark Rovner, Lori Esposito, Ira Goldman, and Theo Brown worked with me to develop the basic concept behind this booklet and then to turn my rough draft into a readable product. Mari Gerlaugh made an enormous contribution through her design and production of the cover and all of the other graphics. Robbie Nichols typed the text more times than she would like to remember and helped with editing all along the way. Alison Burka, Tom Dunlap, Pat Campbell and others pitched in with timely help as we moved towards actual printing. All in all, it was a cooperative team effort —similar in style to the type of effort the human community must make if we are to succeed in preventing nuclear war.

Roger Molander
Executive Director
Ground Zero

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What if you had the power—and the duty—to prevent World War III? How would you go about it? Where would you start?

You *do* have the power and the duty, and this booklet offers you some suggestions on how to begin taking on the greatest challenge the human community has ever faced—and will face for generations to come.

WHAT IS THE PROBLEM?

The problem is an arms race out of control. The problem is poor U.S.-Soviet relations. The problem is escalation in hot spots like the Middle East. The problem is the spread of nuclear weapons. The problem is . . . HOLD IT!

The problem is preventing nuclear war.

Stopping the nuclear arms race, improving relations between the superpowers, and seeking peace in the Mid-East and other international hot spots all relate to the problem of preventing nuclear war. But they are only parts of the larger problem: How are we going to *prevent* nuclear war — and, most important, how are we going to prevent all-out nuclear war between the United States and the Soviet Union?

In thinking about preventing nuclear war, we must apply the same common sense that we use to prevent anticipated problems in our everyday lives.

For example, suppose you were growing tomatoes in your backyard. A successful harvest requires avoiding a wide range of potential problems. What are they? Disease, insect infestation, malnourishment, and improper watering — to name a few. What must you do to prevent these problems? Among other things you should select resistant varieties, prepare the soil thoroughly, treat for any symptoms of blight or insects, and water regularly.

While the fate of a few dozen tomatoes is trivial next to the threat of nuclear war, we must approach both challenges in essentially the same way. First, we make a careful appraisal of what might go wrong and then we judiciously apply all the tools we have on hand to prevent the worst.

When applied to the threat of nuclear war, this common sense approach reveals that:

- There are many ways in which a nuclear war might occur; and
- There are a number of tools on hand for helping to prevent it.

Each of the ways in which a nuclear war might start demands its own set of preventive tools and techniques. Going back to our analogy, a

backyard gardener would be foolish to treat a viral disease with insecticide.

This booklet surveys the potential paths to nuclear war and the available means of preventing any of those paths from being followed to its cataclysmic end. Armed with this knowledge, citizens can participate in a process which addresses all the major threats of nuclear catastrophe, and which fully utilizes all the tools available for its prevention.

HOW MIGHT NUCLEAR WAR OCCUR?

Imagine a bomb with a large number of separate fuses, each of them capable of independently detonating the bomb. That is the situation we face today in confronting the threat which nuclear war poses to our lives and to our planet. There is not just *one* way that nuclear war might occur but instead *many* ways. And it is critically important that we recognize this fact as we attack the problem of preventing nuclear war.

There are *six* generic paths or sequences of events (nuclear strategists call these scenarios) that might culminate in an all-out nuclear war or "general" nuclear war, as it is sometimes called.

The six doomsday scenarios are:

1. Bolt from the Blue: A Pearl-Harbor-type surprise nuclear attack is launched by the Soviet Union against the U.S. — or vice versa.

2. Escalation in a European Conflict: A conventional war with the Soviets in Europe escalates to the point where nuclear weapons are used, and the conflict then continues to build to all-out nuclear war between the superpowers.

3. Escalation in a Third World Conflict: A future Third World conflict reaches the point where one of the Third World countries involved in the conflict uses nuclear weapons against another. As the "nuclear war" escalates, the U.S. and the Soviet Union are drawn in and ultimately turn upon one another with nuclear weapons. Alternately, the Third World conflict involves only conventional weapons, but the U.S. and the Soviet Union are drawn in and use nuclear weapons as escalation gets out of control.

4. Escalation after a False Alarm: A crisis and eventually nuclear war results from the mistaken belief that one side has launched nuclear weapons against the other.

5. Escalation after Terrorist Use of Nuclear Weapons: A terrorist attack with nuclear weapons leads to chaos and confusion. The crisis escalates and eventually nuclear weapons are exchanged by the superpowers.

6. Escalation after Accidental or Unauthorized Use of Nuclear Weapons: Nuclear weapons are launched either accidentally or by someone who does so without proper authority (that is, without the authorization of a head of government or military commander).

As suggested in the illustration on the cover of this booklet, each of these scenarios corresponds to one fuse on the nuclear bomb. Not surprisingly, experts believe that some of the fuses are more easily ignited than others. For instance, most (but not all) experts currently believe that for the foreseeable future — the next decade or so — the most likely of the six generic routes to nuclear war would be a Third World crisis in which the superpowers are gradually drawn into the conflict. On the other hand, it wasn't long ago that there was much more concern about escalation in a European conflict. At the same time the public is often led by the rhetoric in debates over strategic weapons and strategic nuclear arms control to focus their concerns on the bolt-from-the-blue scenario.

Clearly it is important to try to identify which of the "fuses" is most dangerous so that we can allocate more time and energy to the greatest threat — and to this end both expert *and* public opinion on the most likely route to nuclear war is useful. Since we have no experience on how nuclear war might begin, however, we must view each of the six routes to nuclear war as a very real possibility. Furthermore, the stakes are so high that we cannot afford to relax our efforts until we are confident that nuclear war cannot occur through *any* of these scenarios.

WHAT TOOLS DO WE HAVE FOR PREVENTING NUCLEAR WAR?

FIREBREAKS – SNUFFING OUT THE FUSE

Having identified the six generic scenarios by which nuclear war might occur, we must now ask ourselves how we are going to insure that no one of them ever leads to nuclear war. What are the tools available to us – the policies, practices, weapons agreements, relationships, etc. – that might be employed to prevent the scenarios from starting in the first place or, once started, from escalating to higher and higher levels and eventually reaching general nuclear war?

Using our six-fused nuclear bomb analogy, the challenge we face is to prevent the fuses from being lit or, if any one of them is lit, to insure that it cannot burn all the way to the bomb. Thus what we seek can be compared to the "firebreaks" used to halt the spread of forest fires. By knocking down a wide area of trees and bulldozing away brush from the path of the forest fire, firefighters seek to prevent the fire from racing totally out of control. In the same manner, we might view nuclear war prevention efforts as attempts to cut effective "firebreaks" along the paths of our six fuses, lest one of these fuses burn all the way down and explode the bomb.

TYPES OF POTENTIAL FIREBREAKS

It would be nice if the United States could, by its own independent actions, insure that none of the nuclear war fuses would ever be lit or, if lit, could be quickly snuffed out. However, it has become abundantly clear that we do not live in a world in which this is possible. To insure that nuclear war never occurs we must look for effective firebreaks that involve cooperation with other countries.

With this in mind, what then are the resources available to us? Nuclear war firebreaks fall into the following categories:

- Improved Relations Between Countries
- Arms Control
  - Strategic nuclear arms control
  - Nuclear arms control in Europe
  - Conventional arms control
- Nuclear Nonproliferation
- Conflict Resolution
- Crisis Communications

1. Improved Relations: Perhaps the firebreak with the greatest potential to prevent nuclear war is the effort to reduce tensions between nations by seeking improved relations. In fact, a successful effort to improve relations between nations is tantamount to insuring that several of the nuclear war scenarios are not even credible — that the fuses cannot even be lit. If nations which are currently adversaries can be persuaded to settle their differences peacefully or simply put them aside — whether these differences stem from disputes over territory, religion, political ideology, economic systems, or whatever — then the likelihood of war, including nuclear war, would be greatly reduced.

Clearly this argument applies not only to improving relations between nations in the Third World, but to the industrialized nations as well, and especially to relationships between the superpowers.

2. Arms Control: Strategic nuclear arms control efforts (such as SALT and START, which cover long-range nuclear weapons delivery systems including ICBMs, submarine-launched missiles, and intercontinental bombers) represent a potentially useful firebreak in that such agreements can help to make the outcome of an all-out nuclear exchange so certain (mutual assured destruction) that neither side would rationally be tempted to launch such an attack. Since virtually every scenario eventually comes to a point where superpower decision-makers — those with their fingers "on the button" — face the certainty of mutual destruction if that button is pushed, strategic arms control negotiations are a vital element in a comprehensive plan to prevent nuclear war.

But will cool heads always prevail in a crisis? We would like to think so, but the lessons of history and the impact of emotion on crisis behavior provide no assurance that this is the case. Nevertheless, the predictability achieved through strategic arms control, along with certain unilateral actions, offers an important tool for stopping conflicts short of all-out nuclear war.

Other arms control measures might also provide effective firebreaks for specific scenarios. These include, for example:

- Intermediate-range nuclear arms control measures in Europe to reduce tension and insure a balance of shorter-range nuclear forces.
- Regional arms control measures to reduce tension, insure a balance of conventional forces, and reduce the incentive to initiate conventional conflict.
- Controls on conventional arms sales to countries to lessen hostility and tension between adversaries and reduce the likelihood of Third World conventional conflict.

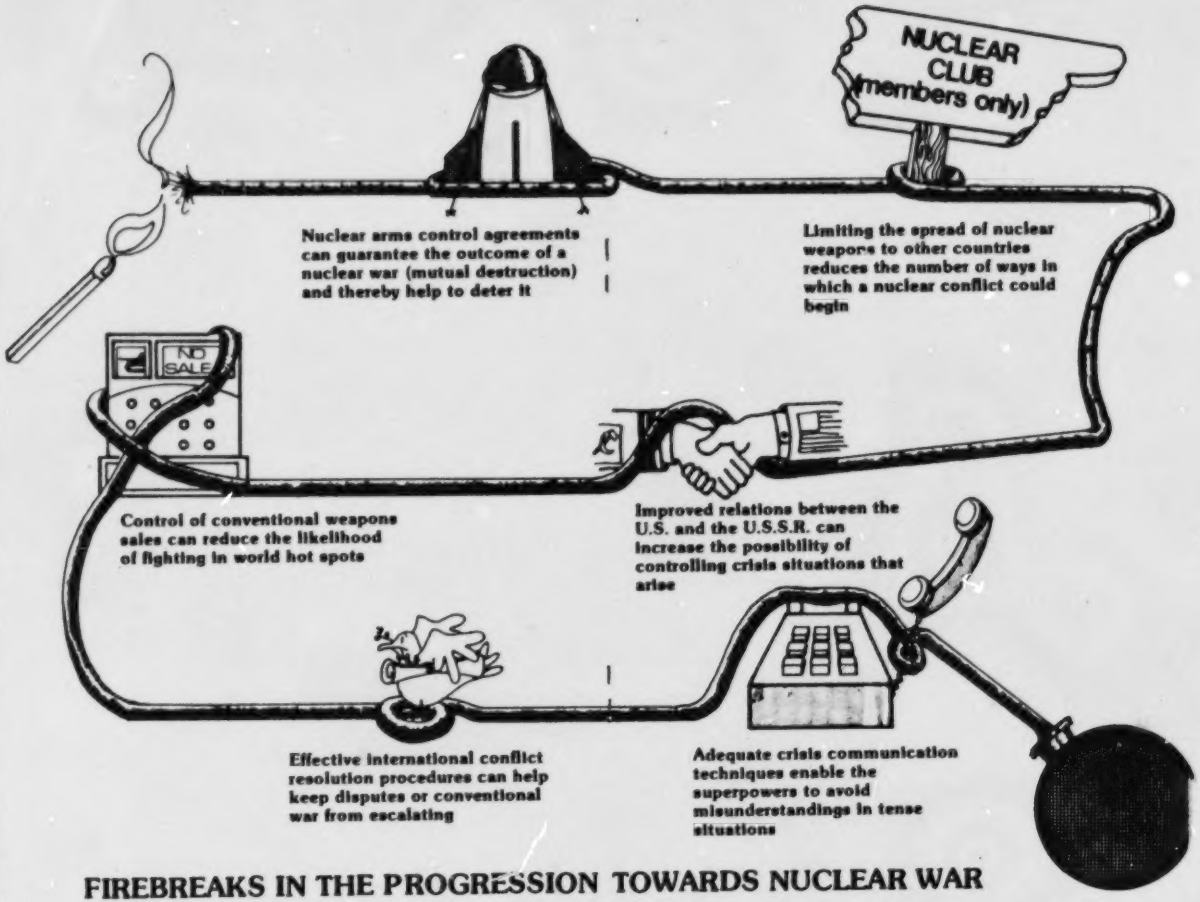
3. Nuclear Nonproliferation: Halting the spread of nuclear weapons to nations which do not yet have them (sometimes referred to as "restricting membership in the Nuclear Club") is an important firebreak for several of the nuclear war scenarios. The more countries that have nuclear weapons, the greater the danger that such weapons may actually be used in the midst of a conventional war — especially if one country is about to suffer a disastrous defeat.

A major part of the effort to halt the spread of nuclear weapons is the need to prevent the spread of certain technologies and weapons-grade "fissionable" (explosive) material — the uranium or plutonium used in first-generation nuclear weapons. Measures such as strict export controls on "sensitive" technologies and facilities can help prevent other countries from developing a nuclear weapons capability. Tight monitoring of all nuclear reactors which contain or produce fissionable material can also help insure that none of the material is diverted to military use.

4. Conflict Resolution: The term conflict resolution can be applied to those techniques or mechanisms which seek to prevent differences or disputes from reaching the stage of military conflict in the first place. Once ordinary bombs and bullets start flying, the possibility of escalation to the use of nuclear weapons obviously becomes much greater. However, it is clear that military conflicts will occur and that finding techniques or methods of controlling or deescalating these conflicts *short of a final military solution* presents an extraordinary challenge.

Within the last year, both the Falkland Islands and Lebanese crises vividly illustrated the ineffectiveness of current conflict resolution techniques. In the Falklands crisis, mediation efforts by (1) a superpower (the U.S.), (2) the UN, (3) a Latin American UN Secretary General, (4) the Organization of American States, and (5) the Pope, all failed to keep the crisis from going all the way to a military solution. These failures led U.N. Secretary General Perez de Cuellar to remark, "We are perilously near to a new international anarchy."

It seems clear that nations must make a more committed effort to develop effective conflict resolution techniques. In the nuclear age, conflict that evolves to a military solution is extremely dangerous


NUCLEAR CLUB (members only)
Nuclear arms control agreements can guarantee the outcome of a nuclear war (mutual destruction) and thereby help to deter it
Limiting the spread of nuclear weapons to other countries reduces the number of ways in which a nuclear conflict could begin
NO SALE
Control of conventional weapons sales can reduce the likelihood of fighting in world hot spots
Improved relations between the U.S. and the U.S.S.R. can increase the possibility of controlling crisis situations that arise
Effective international conflict resolution procedures can help keep disputes or conventional war from escalating
Adequate crisis communication techniques enable the superpowers to avoid misunderstandings in tense situations

FIREBREAKS IN THE PROGRESSION TOWARDS NUCLEAR WAR

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—especially in the future, when both sides to a dispute might possess nuclear weapons.

5. Crisis Communications: The term crisis communications refers to those efforts to maximize highly personal leadership-to-leadership communications in the midst of an escalating crisis. This is particularly relevant with respect to the superpowers — and the basic rationale for the current U.S.-Soviet Hot Line.

Crisis communications are particularly important in situations where there is the possibility of a tragic miscalculation or misunderstanding. This would be the case, for example, if there were a nuclear explosion of uncertain origin or purpose — as could be the case in a least two of the six scenarios for general nuclear war.

Crisis communications also constitute the "last ditch" firebreak —when almost all else has failed and there remains the possibility that personal communication between the leaders of the two superpowers might still avert a nuclear war. It seems unlikely that the current Hot Line, a slow teletype machine requiring translation at both ends, is adequate to such a task.

BURNING FUSES AND FIREBREAKS – A CLOSER LOOK

The material which follows presents a more detailed description of the six major nuclear war scenarios, and brief examples of firebreaks which are relevant for each. The specific firebreaks suggested are by no means exhaustive – they only serve as samples of the wide variety of factors that come into play in efforts to control each scenario.

FUSE #1: BOLT FROM THE BLUE

The term "bolt from the blue" refers to a totally unexpected nuclear attack by the Soviet Union on the United States – or vice versa. It describes an attack which takes place during a period when relations between the United States and the Soviet Union are in their normal state of strain, but not under the additional stress of a particular crisis.

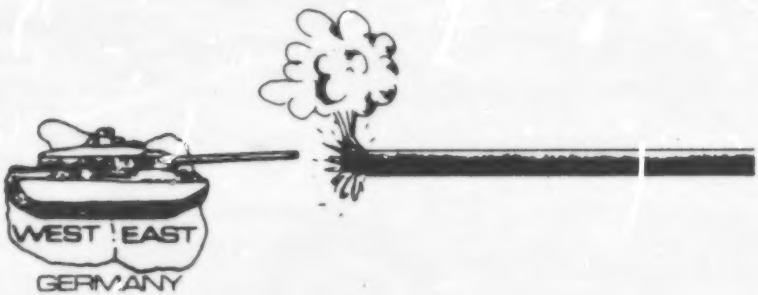
If either side attempted such an attack today – or any time in the foreseeable future – enough missiles and bombers would survive on the other side to deal the attacking nation a devastating retaliatory blow. It is the current and projected predictability of this outcome which leads most experts to believe that nuclear war initiated with a bolt from the blue is highly unlikely.

Nonetheless, both the U.S. and the Soviet Union take great care to design and posture their forces to guard against the possibility that the other side would conclude (rightly or wrongly) that it could launch an attack out of the blue and successfully blunt the retaliatory strike from the other side. This conclusion might be reached rationally, for example, as a result of a perceived technological breakthrough (space based lasers for shooting down missiles and bombers) or irrationally, if an unstable leader in the mode of Adolf Hitler gains power in the U.S. or the Soviet Union and one day simply "pushes the button."

Examples of Possible Firebreaks

Improved Relations: Reduced hostility between the U.S. and the U.S.S.R. could remove any possible rationale for a surprise attack.

Strategic Arms Control: Continued predictability (mutual destruction) of the outcome of a U.S. or Soviet bolt from the blue argues strongly against either side ever choosing this option.



FUSE #2: ESCALATION IN A EUROPEAN CONFLICT

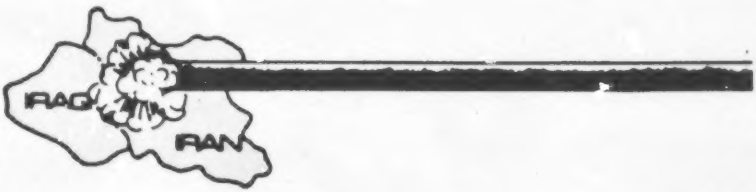
Since the end of World War II and the deterioration in U.S.-Soviet relations, a major concern of both the United States and its Western allies has been war with the Soviet Union in Europe. This concern has focused on the possibility of a Soviet attack on Europe with conventional forces, and the U.S. and its NATO allies have publicly stated that they are prepared to use nuclear weapons if such a Soviet attack cannot be halted with NATO conventional forces. To provide for such a contingency, the U.S. has deployed large numbers of nuclear weapons in Western Europe. The Soviet Union also has a very significant number of short and medium-range nuclear delivery systems for use in a European conflict.

Examples of Possible Firebreaks

Improved Relations: Good relations between Western European nations and those in the Eastern bloc reduce the possibility of armed conflict ever starting; improved U.S.-Soviet ties could keep the superpowers out of any area conflict that did occur.

Arms Control: A rough balance of conventional and intermediate-range nuclear forces in the European theater reduces the concern about possible attack by either side.

Crisis Communications: Adequate superpower communications makes it more difficult for an unexpected incident to spark war in this historically volatile region, which currently has the highest concentration of East-West military forces.



FUSE #3: ESCALATION IN A THIRD WORLD CONFLICT

It is not hard to identify those regions of the Third World in which conflict could occur and lead to superpower confrontation. It can be done by simply picking up a globe or by scanning a few days of newspapers. In fact, in many of the world's hot spots, armed conflict seems almost regular if not endless.

For the next five to ten years, the most realistic scenarios of how a war might begin in the Third World do not involve the use of nuclear weapons by Third World nations. At present, India is the only Third World nation which definitely possesses nuclear weapons capability. However, as one looks to the longer term — say the early 1990s and beyond — acquisition of nuclear weapons by Third World nations and their use or threatened use in a conflict would dramatically increase the likelihood that a Third World conflict could draw the U.S. and the Soviet Union into an all-out nuclear war.

At present the hot spots which appear to be the most dangerous in terms of possibly escalating to superpower confrontation and nuclear war are: the Middle East, the Persian Gulf, Southern Africa, and India-Pakistan. Other Third World regions of potential conflict and superpower confrontation include the Caribbean Basin, the southern cone of South

America, Taiwan, the Horn of Africa, and the Korean Peninsula. In other words, almost any region of the world presents the possibility of superpower confrontation. The 1982 Falkland Islands crisis gives vivid testimony to how unexpected conflict can break out in even the most remote regions of the world.

Examples of Possible Firebreaks

Improved Relations: Better relations between Third World nations could defuse many of the Third World hot spots; improved relations between the U.S. and the Soviet Union would reduce the risk that they will be drawn into a Third World conflict.

Arms Control: Restricting the supply of modern weapons to Third World nations would reduce the likelihood of intensive conflict; strategic arms control can assure the continued predictability of the outcome of a U.S. Soviet nuclear exchange.

Nuclear Nonproliferation: Halting the spread of nuclear weapons can reduce the risk of Third World countries acquiring and using them.

Conflict Resolution: Better techniques would settle international differences and more effectively curtail escalation toward military solutions.

Crisis Communications: Effective means of communication could work as a last-ditch effort to halt a U.S.-Soviet nuclear exchange.

FUSE #4: ESCALATION AFTER A FALSE ALARM

The possibility of false alarms in the nuclear war business is at first blush preposterous. It seems incredible that with our advanced technology and with an annual expenditure of hundreds of billions of dollars on defense, a false indication of nuclear attack is possible. Unfortunately, events have proven that it is. In the United States there have been several significant and sobering false alarms during which for several minutes we believed that a Soviet attack might be underway. In a

1979 incident at the Colorado Springs headquarters of the North American Air Defense Command (NORAD), the cause was human error — failure to remove a practice tape from a backup computer which had to be used when the main computer broke down. In a 1980 incident at U.S. Air Force Strategic Command (SAC) headquarters in Omaha, Nebraska, the cause was machine error — failure of a computer "chip." We can only assume that the Soviets have experienced similar incidents — if not more alarming ones, since we claim greater technical sophistication and attention to safety.

If not quickly detected, a false alarm could start an escalation toward nuclear war, especially if it occurred during a crisis. False alarms would be of even greater concern if either side adopted a policy of "launch on warning," that is, a policy which calls for launching ICMBs when a warning system indicates an attack against missile sites is underway.

Examples of Possible Firebreaks

Crisis Communications: Quick and accurate person-to-person communications between Washington and Moscow would considerably reduce the possibility of catastrophic misunderstanding in the event of false alarms.

Improved Relations: Generally good superpower relations would reduce the risk that a false alarm would be judged credible or that a crisis would exacerbate the seriousness of such an alarm.

FUSE #5: ESCALATION AFTER TERRORIST USE OF NUCLEAR WEAPONS

What would we do if Washington were suddenly destroyed by a nuclear explosion? What would the Russians do if the same thing happened to Moscow? What would happen if one day Tel Aviv just disappeared? With the current growth in both the magnitude and character of terrorist activity around the world, there is increasing concern that terrorists might someday obtain and use nuclear weapons. They might steal such weapons, be given them, or steal the requisite nuclear material and find ways to fashion the weapons themselves. The explosion of such a bomb might not be immediately recognized as an isolated act of terrorism, and the ensuing chaos could include some sort of nuclear retaliation.

Examples of Possible Firebreaks

Nuclear Non-Proliferation: Halting the spread of nuclear weapons to other nations would help keep nuclear weapons out of the hands of terrorists. Since the technology for fabricating primitive nuclear weapons is reasonably well understood, a committed effort to keep weapons-grade fissionable materials from terrorists is also important.

Crisis Communications: Should terrorists threaten to explode —or actually explode—a nuclear weapon, crisis communications could reduce the risk of misunderstanding and nuclear retaliation.

FUSE #6: ESCALATION AFTER ACCIDENTAL OR UNAUTHORIZED USE OF NUCLEAR WEAPONS

Both the U.S. and the Soviet Union have expressed concern about accidental or unauthorized use of nuclear weapons, and a 1973 agreement provides for prompt communications to avoid such an event leading to nuclear war. In those instances in which the damage from an accidental or unauthorized missile launch is minimal, prompt crisis communications should prevent escalation to the further use of nuclear weapons. However, where the damage is substantial, for example in the case of the destruction of a national capital or other major city, the challenge of finding an effective firebreak for controlling escalation would be extraordinary.

Examples of Possible Firebreaks

Crisis Communications: Relaying instant and accurate information about an unauthorized launch is essential to any effort to prevent subsequent escalation.

Arms Control: A balance of nuclear forces would lead the superpowers to be more cautious in their response to an unauthorized attack.

USING FIREBREAKS EFFECTIVELY

Preventing nuclear war is possible only when potential firebreaks are used effectively. Remembering our tomato patch once again, watering will aid a gardener in preventing the destruction of his or her plants only if it is done the right way. The following factors should be kept in mind to guarantee that firebreaks do the job they are intended to:

Combinations: A survey of the various routes to nuclear war makes it clear that no single firebreak can stop any of the six scenarios from occurring. All routes to nuclear war must be blocked by a combination of different firebreaks — some of which are dependent on each other and others which operate separately.

Timing: Some firebreaks are of value in keeping a fuse from being lit, others in defusing a crisis when it first starts, and others at the last moment when nuclear war seems imminent. Sometimes the same firebreak (or variations of it) will come into play at several points in a developing scenario. Knowing when to focus on what part of the nuclear war problem is essential.

Content: A wide variety of different resources are included under each of the general types of nuclear war firebreaks. Constant re-examination of options under each firebreak is necessary to insure that the best resources available are being utilized.

CONCLUSION

The first step in dealing constructively with the threat of nuclear war is recognizing that the threat will not go away. The sobering truth is that the prevention of nuclear war is not a short-term problem that will fade away in a few years or even a few generations. Even total nuclear disarmament — a goal that seems virtually impossible in today's world —would not permanently guarantee the prevention of nuclear war. Even with all of our current weapons dismantled, the knowledge of how to make them would still remain. Thus, even in a world free of nuclear weapons, we would be only weeks or months from making new ones and turning a conventional war into a nuclear one.

Since the threat of nuclear war is henceforth to be an abiding fact of human existence, we have no choice but to learn to manage the threat and find ways to keep it under control. The community of nations —and particularly the United States and the Soviet Union — must develop a variety of means to keep nuclear weapons from being used. The challenge of doing that is enormous. It is nothing less than the greatest challenge that the human community has ever faced.

The concept of "firebreaks" which has been discussed in this booklet is one way of viewing the long-term problem of preventing nuclear war. Wherever a fuse is ignited that could lead to nuclear war — and there is little doubt that many such fuses will be lit in future years — the leaders and citizens of the world will be faced with the challenge of stopping the burning fuse. Fully and effectively utilizing *all* of the various resources available to the burning fuses must be a national and international priority of the highest order.

In thinking about the prevention of nuclear war, it is important not to become too rigid about causes and means of prevention. Solutions that are appropriate today may not be tomorrow. The world's political environment is like a child's kaleidoscope, with patterns, shapes, and relationships constantly changing, constantly revealing new and different arrangements. For us, this means that the answers to the two questions that began our inquiry — How might nuclear war occur? and What must we do to prevent it? — are likely to change over time. New pathways to nuclear war might emerge and old ones disappear. Hopefully, new firebreaks will also be discovered.

So, we must not only begin with these two simple questions, we must keep returning to them.

The task of preventing nuclear war is an awesome one. It requires utilizing a wide variety of resources effectively in countless different situations. It requires the institutionalization of a type of crisis management and international cooperation that is different from anything the world has ever seen. The very difficulty of the task may discourage many people from participating in the effort. At the same time, the horrible spectre of the threat may provide some hope for achieving the kind of breakthroughs in international problem-solving that are necessary to prevent nuclear war from ever occurring.

DISCUSSION QUESTIONS

1. Which of the six routes to nuclear war do you think is the most likely? What specific scenario troubles you the most?

2. Discuss each of the five general types of "firebreaks." Can you think of resources for preventing nuclear war that do not fit under one of these five headings?

3. List as many specific actions as possible that the United States could take to improve the effectiveness of each "firebreak."

4. Are there any "firebreaks" that you think have received too much emphasis in public debate during the past few years? Which "firebreak" do you think is most neglected?

5. How can citizens use the model set forth in this booklet to reduce the threat of nuclear war? Suggest as many specific ways as possible.

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